

The diagram illustrates a laser current control system with temperature compensation. The system is divided into several functional blocks:

- TEMPERATURE COMPENSATION CIRCUIT UNIT (117):** This unit includes a **TEMPERATURE SENSOR (118)**, a **DATA STORAGE UNIT (119)**, a **D/A CONVERTER (120)**, and an **ADDER CIRCUIT (121)**. The temperature sensor provides input to the data storage unit, which outputs to the D/A converter. The D/A converter's output, V_p , is fed into the adder circuit.
- Current Source and Switching:** A **LASER DIODE (114)** is connected to a **CURRENT SWITCH (113)**. The current switch is controlled by **DATA (112)** and **CLOCK** signals. It is driven by a transistor T_r (116) whose base is connected to a current source I_p (122) and whose emitter is grounded. The collector of T_r is connected to the laser diode and the non-inverting input of an **OPERATIONAL AMPLIFIER (121)**. The inverting input of the operational amplifier is connected to a feedback network consisting of a resistor R (122) and a node V_r .
- Monitoring and Feedback:** A **MONITOR PHOTODIODE (124)** is connected to the laser diode. Its output current I_m is converted to a voltage by a **CURRENT/VOLTAGE CONVERSION AMPLIFIER (125)**. The output of this amplifier is fed into an **A/D CONVERTER (126)**, which then connects to a **MODE SELECTOR CIRCUIT (127)**. The mode selector circuit outputs to a **DATA STORAGE UNIT (129)**, which then connects to a **D/A CONVERTER (132)**. The output of the D/A converter is V_{ref} , which is fed into a **DIFFERENTIAL AMPLIFIER (133)**.
- Control and Output:** The **DIFFERENTIAL AMPLIFIER (133)** also receives V_p from the adder circuit. Its output V_o is fed into a **MODE SELECTOR CIRCUIT (134)**. The mode selector circuit (134) outputs to a **MODE SELECTOR CIRCUIT (135)**, which then controls the **CURRENT SWITCH (113)** and the **MONITOR PHOTODIODE (124)**. The output of the mode selector circuit (135) is also fed back to the **ADDER CIRCUIT (121)** in the temperature compensation unit.
- H/L SWITCHING:** A **MODE SELECTOR CIRCUIT** at the bottom controls the **H/L SWITCHING** of the system.

The diagram illustrates a laser current control system with temperature compensation. The system is divided into several functional blocks:

- Input and Control Section:** Includes a **DATA** input and a **CLOCK** input connected to a **D-F/F** (Digital-to-Flip-Flop) block. This block controls a **CURRENT SWITCH**.
- Laser and Current Sources:** A **LASER DIODE** (239) is connected to a current source I_b through a resistor R . A **MONITOR PHOTODIODE** (252) is connected to a current source I_m through a resistor R . A **TEMPERATURE SENSOR** (244) is connected to a **DATA STORAGE UNIT** (245).
- Temperature Compensation Circuit Unit (242):** This unit contains:
 - OPERATIONAL AMPLIFIER** (247) and **ADDER/SUBTRACTOR CIRCUIT** (248).
 - D/A CONVERTER** (246) and **ADDER/SUBTRACTOR CIRCUIT** (249).
 - DATA STORAGE UNIT** (245) and **TEMPERATURE SENSOR** (244).
- Current and Voltage Conversion Section:**
 - CURRENT/VOLTAGE CONVERSION AMPLIFIER** (253) and **CURRENT/VOLTAGE CONVERSION AMPLIFIER** (254) are connected to the laser and monitor photodiodes respectively.
 - MODE SELECTOR CIRCUIT** (256) and **MODE SELECTOR CIRCUIT** (257) are connected to the outputs of the conversion amplifiers.
 - DIFFERENTIAL AMPLIFIER** (258) and **DIFFERENTIAL AMPLIFIER** (259) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (260) and **MODE SELECTOR CIRCUIT** (261) are connected to the outputs of the differential amplifiers.
 - MODE SELECTOR CIRCUIT** (262) and **MODE SELECTOR CIRCUIT** (263) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (264) and **MODE SELECTOR CIRCUIT** (265) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (266) and **MODE SELECTOR CIRCUIT** (267) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (268) and **MODE SELECTOR CIRCUIT** (269) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (270) and **MODE SELECTOR CIRCUIT** (271) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (272) and **MODE SELECTOR CIRCUIT** (273) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (274) and **MODE SELECTOR CIRCUIT** (275) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (276) and **MODE SELECTOR CIRCUIT** (277) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (278) and **MODE SELECTOR CIRCUIT** (279) are connected to the outputs of the mode selector circuits.
 - MODE SELECTOR CIRCUIT** (280) and **MODE SELECTOR CIRCUIT** (281) are connected to the outputs of the mode selector circuits.

FIG.3

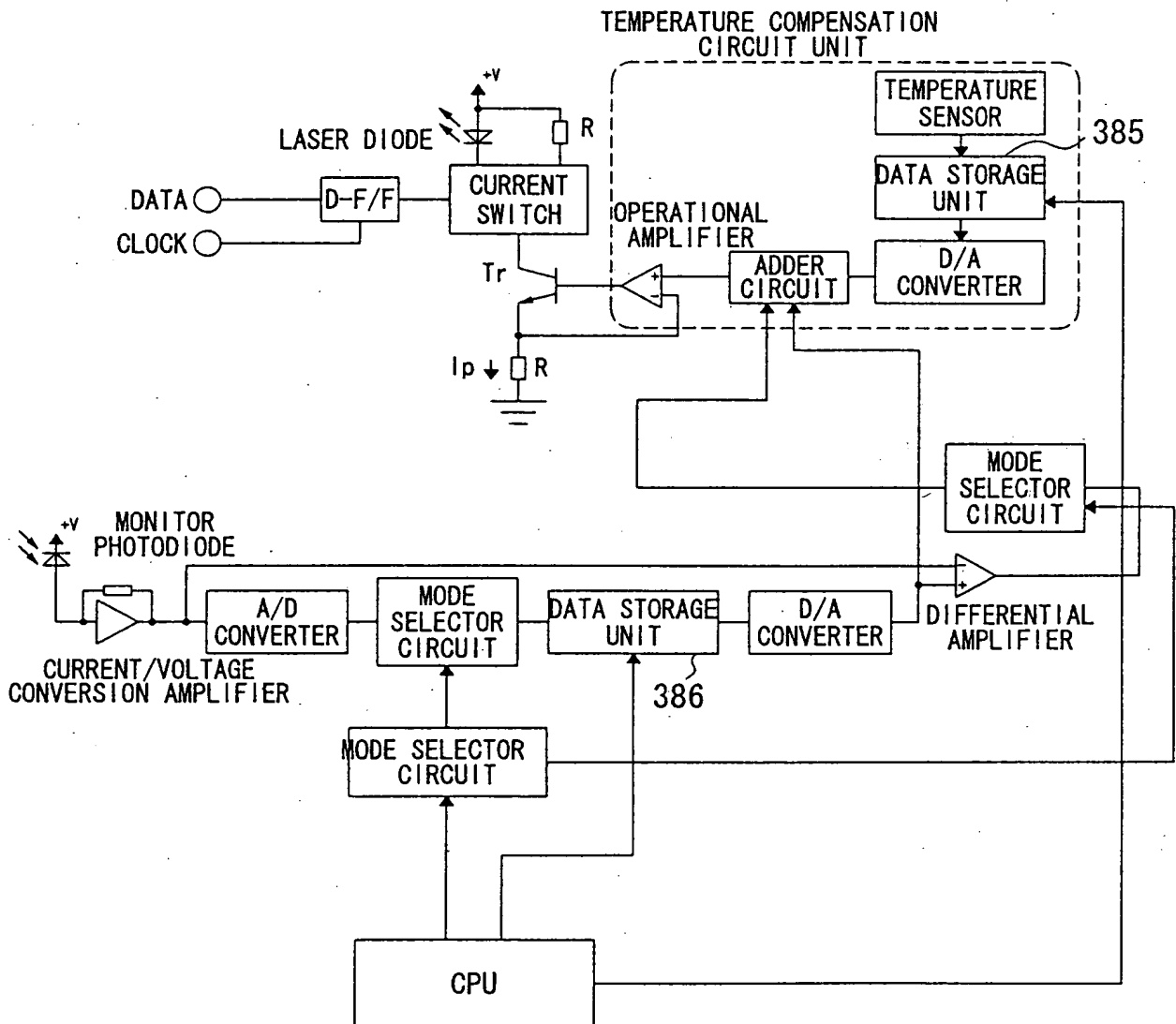


FIG.4

